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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,566

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EXAMINER

HUARACHA, WILLY W

ART UNIT

PAPER NUMBER

2195

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,566	<b>Applicant(s)</b> GOLITSCHKE EDLER VON ELBWART ET AL.	
	<b>Examiner</b> WILLY W. HUARACHA	<b>Art Unit</b> 2195	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 23-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/27/2006 and 08/25/2009</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 23-45 are currently pending and have been examined.

#### ***Drawings***

2. Figures 1-4, 6 and 8 appear to constitute prior art and should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 37-45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

5. As per claim 37, is directed to a scheduler. However, the recited components of the scheduler (e.g. a scheduling unit, checking unit, and releasing unit) appear to lack the necessary physical components (hardware) to constitute a machine or manufacture under 101 (spec. pages 3-5). Therefore, these claim limitations can be reasonably interpreted as being computer program modules or software per se and hence non-statutory. Applicant is advised to amend the claims to

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include hardware (e.g. processor) to overcome the 101 rejection.

6. Claims 38-45 are rejected for failing to cure the error of their respective parent claim.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 23-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The following claim languages lacks antecedent basis:

- i. Claim 23, line 11 -- the resource constraint –
- ii. Claim 31, -- the step of checking whether at least one other resource constraint ...” --

- b. The following claim languages are not clearly understood and indefinite:

- i. As per claim 23, line 4, it is not clearly defined what constitutes “allocation units”. Lines 6 and 9, it is uncertain whether the term “a user or service” is the same as the term “a user or service” in line 4 (e.g. if it is, "the" or "said" should be used). Lines 7 and 10, it is uncertain whether the term “a particular scheduling frame” is the same as the term “a scheduling frame ” in line 4-5 (e.g. if it is, "the" or "said" should be used). Lines 9-11, it is unclear of when to perform the step of “releasing the allocations units scheduled for a user” (e.g.

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when the scheduled allocation units meet a resource constraint? or when it doesn't meet?).

ii. As per claims 26 - 29, it is unclear whether the term "at least one resource constraint" is the same as the term "at least one resource constraint" recited in claim 1 (e.g. if it is, "the" or "said" should be used).

iii. As per claim 37, is rejected for having similar deficiencies as claim 23.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 23-30, 33, 36-37 and 40-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Klein (US Pub. No. 20040053574 A1).

11. Klein was disclosed in an IDS filed on 09/27/2006.

12. As per claim 23, Klein teaches the invention as claimed including a method for performing a scheduling algorithm with minimum resource scheduling in a mobile communication system (fig. 1, wireless communication system 100; par. 0017, par. 0001), comprising the steps of:

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scheduling allocation units for a user or service in a scheduling frame (par. 0029, lines 1-4; and fig. 2, steps 214-224),

checking whether the allocation units scheduled for a user or service in a particular scheduling frame meet at least one resource constraint (par. 30, lines 1-5; and fig. 2, step 218), and

releasing the allocation units scheduled for a user or service for that particular scheduling frame based on the result of the checking step for the resource constraint (par. 30, lines 1-9).

13. As per claim 24, Klein teaches wherein the scheduling step includes considering at least one of the following scheduling parameters channel condition, amount of data available for transmission to a specific user, quality of service, delay, data rate and carrier to interference ratio (par. 0029, line 1-3).

14. As per claim 25, Klein teaches wherein the scheduling frame has at least one of a time division, frequency division or code division frame structure (par. 0020, 0029, channel is divided into a plurality of time slots).

15. As per claim 26, Klein teaches wherein at least one resource constraint is a user or service based requirement (par. 0030).

16. As per claim 27, Klein teaches wherein at least one resource constraint is a scheduling frame based requirement (par. 0022).

17. As per claim 28, Klein teaches wherein at least one resource constraint is defined based on a proportion of the available scheduling frame resources (par. 0022; 0030).

18. As per claim 29, Klein teaches wherein at least one resource constraint is represented by a minimum number of scheduled allocation units for the user or service (par. 0030).

19. As per claim 30, Klein teaches wherein the allocation units have a quantity of one of transmittable information bits, internet protocol packets, code blocks or modulation symbols (par. 0004).

20. As per claim 33 Klein teaches further comprising the step of rescheduling the released allocation units to another user or service for that particular frame (par. 30; and fig. 2, upon being inhibited in step 220, is returned for rescheduling to step 214).

21. As per claim 36, Klein teaches wherein the steps of checking and releasing allocation units for all users or services by the scheduling algorithm are carried out in a time sequential manner (par. 0029-0030).

22. As per claim 37, it is a scheduler having similar limitations as claim 23. Thus, claim 37 is rejected for the same rationale as applied to claim 23.

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23. As per claim 40, it is a scheduler having similar limitations as claim 33. Thus, claim 40 is rejected for the same rationale as applied to claim 33.

24. As per claim 41, Klein teaches base station comprising a scheduler according to claim 37 (par. 0017; and fig. 1).

25. As per claim 42, Klein teaches mobile terminal comprising a scheduler according to claim 37 (par. 0017; and fig. 1).

26. As per claim 43, Klein teaches a mobile communication system comprising a transmitter and a scheduler according to claim 37 and a receiver, the receiver further comprising a processing unit for processing information on the result of the scheduling algorithm and a control unit for shutting down at least part of its receiving circuitry for the duration of a scheduling frame for which no allocation units are scheduled to the receiver (par. 0017-0026, fig. 1).

27. As per claim 44, Klein teaches a mobile communication system comprising a scheduler according to claim 37 and a transmitter, the transmitter further comprising a processing unit for processing information on the result of the scheduling algorithm and a control unit for shutting down at least part of its transmitting circuitry for the duration of a scheduling frame for which no allocation units are scheduled to the transmitter (par. 0017-0026, fig. 1).



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28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. Claims 31, 32, 38 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein as applied to claim 23.

30. As per claim 31, Klein does not expressly teach comprising the step of checking whether at least one other resource constraint is not violated by releasing allocation units and releasing the allocation units scheduled for a user or service only if the other resource constraint is not violated by such release. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have expanded the teaching of Klein by including a mechanism for checking, before releasing allocation units, so as to insure that additional constraints are not violated and thereby optimizing scheduling in the wireless communication system.

31. As to claim 32, Klein teaches wherein the step of determining the violation of at least one other constraint comprises determining a quality of service parameter such as a maximum allowable delay or long-term data rate (par. 0002, 0024).

32. As per claim 38, it is a scheduler having similar limitations as claim 31. Thus, claim 38 is rejected for the same rationale as applied to claim 31.

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33. As per claim 45, it is a scheduler having similar limitations as claim 34. Thus, claim 45 is rejected for the same rationale as applied to claim 34.

34. Claims 34, 35 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein as applied to claim 1, in view of Havinga et al. "Energy-efficient TDMA Medium Access Control protocol scheduling".

35. Havinga was disclosed in an IDS filed 09/27/2006.

36. As per claim 34, Klein does not expressly disclose further comprising the step of signaling to the user the result of the scheduling algorithm, in particular whether allocation units are released. However, Havinga teaches wherein at least one resource constraint is represented by a minimum number of scheduled allocation units for the user or service (section II, paragraph 7, and section III, paragraph 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to have included mechanism for signaling a mobile such that the mobile can go on stand by, turn off and wakeup just in time and thereby optimize the utilization of power resources.

37. As per claim 35, Havinga teaches wherein the signaling is transmitted in an associated control channel (section II, paragraph 7, and section III, paragraph 5).

38. As per claim 39, it is a scheduler having similar limitations as claim 34. Thus, claim 39 is

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rejected for the same rationale as applied to claim 34.

### *Conclusion*

39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 6,745,044 B1
- b. U.S. Patent No. 6236646 B1
- c. U.S. Publication No. 20040141460 A1
- d. U.S. Publication No. 20020160783 A1

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLY W HUARACHA whose telephone number is (571) 270-5510. The examiner can normally be reached on M-F 8:30am to 6:00pm, EST.

41. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emerson Puente can be reached on (571) 272-3652. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

42. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

	/Willy W. Huaracha/ Examiner, Art Unit 2195
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/Emerson C Puente/  
Supervisory Patent Examiner, Art Unit 2195